

What Is Your Diagnosis?

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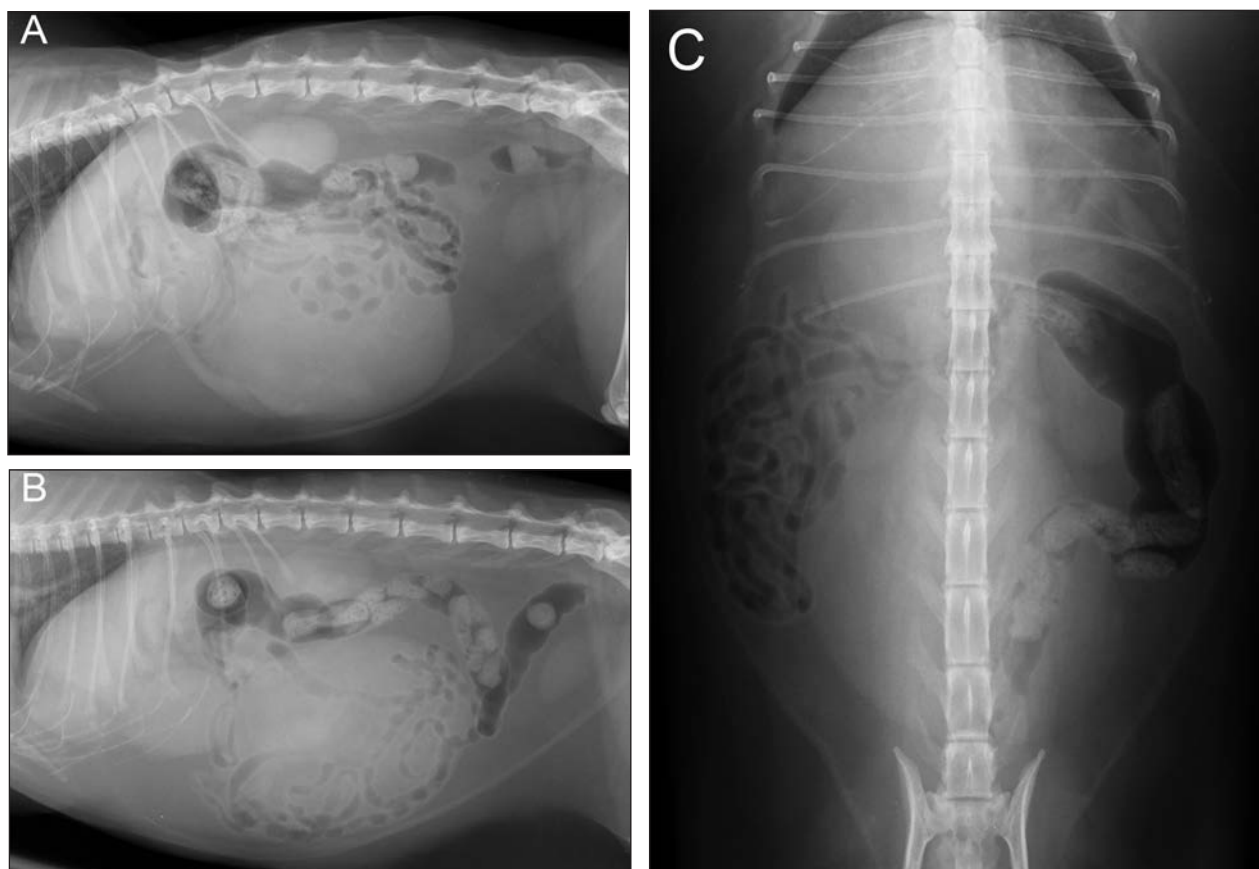


Figure 1—Left lateral (A), right lateral (B), and ventrodorsal (C) radiographic views of the abdomen of a 14-year-old spayed female domestic longhair cat evaluated because of weight loss and tenesmus.

History

A 14-year-old female spayed domestic longhair cat was evaluated because of progressive weight loss over 4 months and recent onset of tenesmus. A serum biochemical profile revealed high activities of alanine aminotransferase (247 U/L; reference range, 10 to 100 U/L) and alkaline phosphatase (128 U/L; reference range, 6 to 102 U/L). No abnormalities were detected on CBC or urinalysis. On physical examination, a large firm mass was palpated in the middle portion of the abdomen. Radiographs of the abdomen were obtained (Figure 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page →

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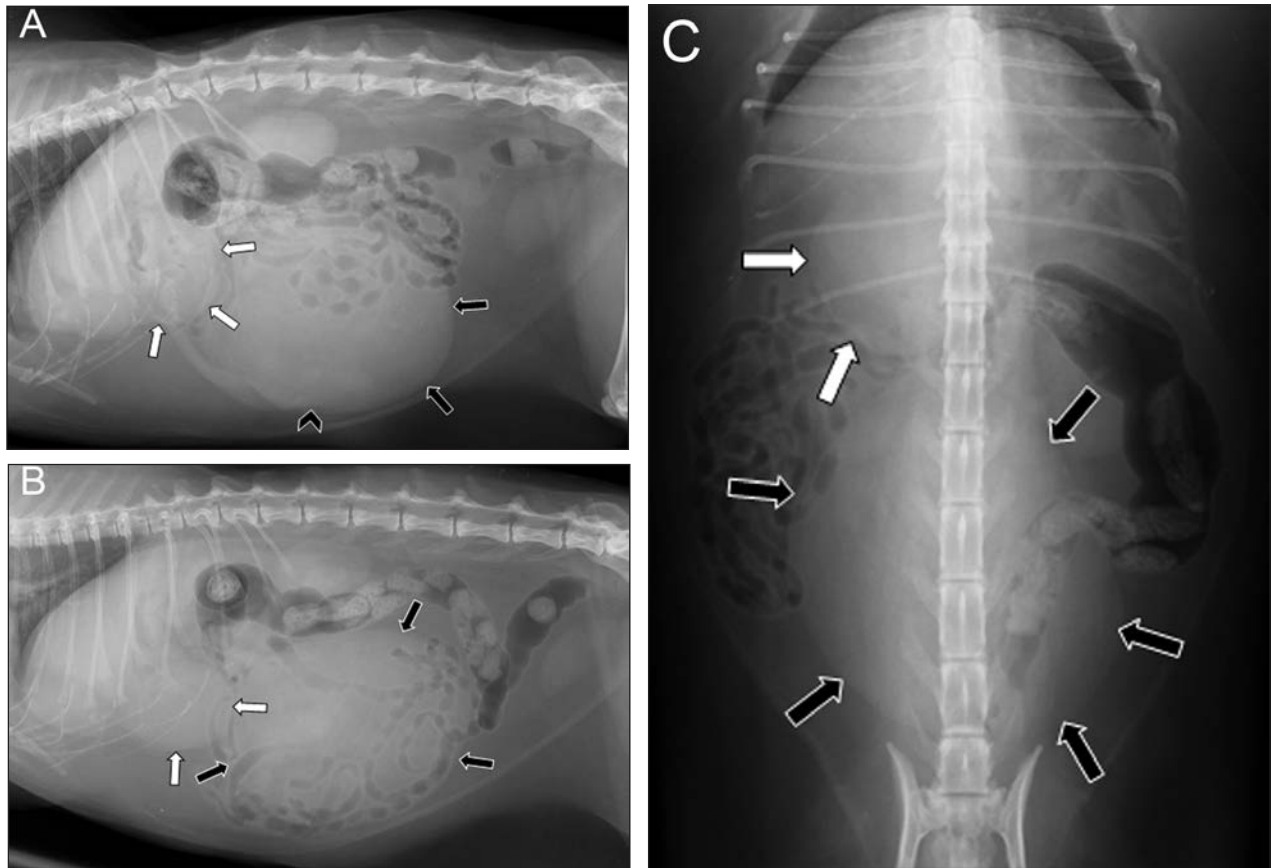


Figure 2—Same radiographic images as in Figure 1. There is a large midabdominal mass (black arrows). The border of the mass effaces with the tail of the spleen (black arrowhead). A mass on the right side of the liver is also present (white arrows).

Diagnostic Imaging Findings and Interpretation

There is a large, well-defined soft tissue opacity mass in the midventral portion of the abdomen ($12.4 \times 10.5 \times 11.7$ cm). On the left lateral radiographic view, the mass silhouettes with the caudoventral aspect of the spleen (Figure 2) and is superimposed with the small intestine. The small intestine is displaced to the right by the mass. A second soft tissue opacity mass is evident in the cranial aspect of the abdomen silhouetting with the caudal aspect of the liver on the right ($4.3 \times 2.9 \times 3.5$ cm). This mass is rounded, well margined, and broad-based where it contacts the liver. The location of the mass in the midventral aspect of the abdomen was consistent with a mass of the mesentery, lymph nodes, or spleen. Differential diagnoses for this mass included neoplasia of the mesentery, lymph nodes, or spleen; a splenic hematoma; or a mesenteric cyst. The second mass was associated with the liver, with differential diagnoses including primary or metastatic neoplasia, nodular regeneration, or a hepatic cyst.

Ultrasonographic examination of the abdomen was performed. The mass in the midventral aspect of the abdomen was hyperechoic, moderately shadowing and had a striated echotexture and a minimal color Doppler signal (Figure 3). Similar to the radiographic findings, it was located in the midventral aspect of the abdomen, causing displacement of the peritoneal contents laterally, cranially, and caudally. The specific organ



Figure 3—Transverse ultrasonographic image of the midabdominal splenic mass of the same cat as in Figure 1. Notice the hyperechogenicity, striated echotexture, and moderate distal shadowing of the mass. The image was obtained transabdominally with a 4-MHz macroconvex transducer at a depth of 14 cm, with the image cropped to a depth of 9 cm.

of origin of the mass was not identified. The second, smaller mass was found in association with the liver. It had a heterogeneous echogenicity with an irregular margination. Multiple, rounded, anechoic to hypoechoic structures, measuring approximately 0.6 cm in diameter with distal enhancement, were seen in the pan-

creas. Differential diagnoses for the large midabdominal mass included a lipoma or liposarcoma, for the hepatic mass included primary or metastatic neoplasia, and for the pancreatic cystic lesions included pancreatic cysts or less likely nodular hyperplasia.^{1,2}

Treatment and Outcome

An exploratory laparotomy was performed. The larger mass originated from the spleen and was removed by means of a hilar splenectomy. The second mass was located at the apex of the left lateral liver lobe and was removed via liver lobectomy. Additionally, a 1-cm-diameter cystic pancreatic mass was removed from the caudal aspect of the left lobe of the pancreas by means of a left partial pancreatectomy. All tissues were submitted for histologic examination. The splenic mass was a myelolipoma. The pancreatic and hepatic masses were an islet cell carcinoma with hepatic metastases.

The patient recovered well from surgery. The cat continued to be evaluated every 2 to 3 weeks over the subsequent 2 months for treatment of constipation and obstipation. Surgical treatment for obstipation was not performed because of the guarded prognosis of pancreatic islet cell carcinoma with hepatic metastases. The cat was lost to follow-up 2 months after surgery.

Comments

On radiographic examination, the myelolipoma was seen in contact with the ventral aspect of the spleen on the left lateral radiographic view of the abdomen but not the right lateral radiographic view. This highlights the importance of 3-view radiography of the abdomen because if only the standard right lateral and ventrodorsal views had been obtained, a splenic origin of this mass would have been considered less likely. Furthermore, the splenic origin of this mass was not seen on ultrasonographic examination, likely owing to a combination of the size of the mass and distal shadowing from the mass obscuring neighboring structures. On the basis of these findings, radiography of the abdomen

was the most helpful diagnostic procedure for evaluating the origin of this mass.

Large myelolipomas are rare in companion animals. The only report³ of a large myelolipoma in the spleen of a domestic cat was published nearly 4 decades ago. Large solitary hepatic myelolipomas have also been reported in 4 domestic cats, 3 of which had concurrent peritoneal-pericardial diaphragmatic hernia.⁴ Small, multifocal myelolipomas have been described as a common finding in the spleen of clinically normal dogs^{5,6} and in the liver and spleen of chronically ill captive wild cheetahs.⁷ Myelolipomas in dogs and cats are typically incidental findings identified on ultrasonographic examinations and do not affect the health of the patient. The 4-month history of weight loss in the cat of this report was likely the result of the pancreatic mass with hepatic metastases. A cause for the tenesmus was not identified.

In summary, myelolipoma should be considered as a differential diagnosis for large splenic masses in cats. Radiography was more useful than ultrasonography for determining the origin of the splenic myelolipoma in this case.

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